



I have found that a few of the Russian captured 98k carbines sold recently look really fantastic on the outside, but when you look inside the bore it looks like a miniature cavern (*complete with stalactites and stalagmites*). The rifling is really worn and the word shiny is the last word I would use in description. I have a couple of these carbines that I picked up in a trade, including a beautiful 1938 Mauserwerke (Oberndorf) Karabiner 98k that I wrote about in the article [Flat Vulture](#). She shoots poorly but has all of her markings and a very nice stock and finish. A close analogy would be that this is kind of like owning a very pretty, classic and collectible car without a working engine. It just sits in the garage for everyone to look at and admire but when they find out she can't really be driven, her luster and beauty is diminished.

I have tried everything to restore the bore to some semblance of what it used to look like when it was carried on the battlefield of the eastern front, but to no avail. Over the years I have found that I am somewhat prejudice when it comes to my rifles - either they shoot or it really does not matter how pretty they are - they hold no value for me.



FIGURE 1

Everything needed for the project: [Tipton Gun Vise](#), [EBC2 Electronic Gun Gleaner Kit](#), and the hopefully willing [candidate](#).

A vendor contacted me and told me that they had an electronic bore cleaner that they would like me to tryout for an article on Surplusrifle.com. I have already written an article on building an electronic bore cleaner and it works pretty well. Then I was told that the product they were offering was far better than the unit I had built for myself. I had not had the opportunity to use any of the commercial electronic bore cleaners on the market today and thought I would give it a try to see how it compared.

My Russian captured 98k with the "less than serviceable" bore and I had just never really developed the relationship that we were destined to have and I was willing to try anything to make it work. Kind of sounds like we were on our way to some marital counseling with the **Love my Guns** bore cleaner. Sorry for the very hokey analogy but it seemed funny enough at the time I wrote it.

Love My Guns - Contact Information	
	
Web Site:	http://www.tfb.com/~sargent/ebc.htm
Email:	gundr@lovemyguns.com

EBC2 Rifle Pack Electronic Bore Cleaning System
--

\$89.00



FIGURE 2

Manufacturer Supplied Instructions

Insert the best fitting delivered rubber bore plug into barrel tightly, so cleaning solution will not leak out.

The Love my Guns electronic bore cleaning kit comes with everything you need to get going, including enough solution to clean around six to ten rifles of varying barrel lengths. At the heart of the kit is a sealed electronic device called the EBC2 that connects to the supplied cleaning rod that you place in the bore. The EBC2 device times the cleaning session for you so there is no guess work involved and also tells you when it is not hooked up properly. There are no batteries and you just plug it into an electrical outlet. You don't have to know anything about electronics to use the device. Just follow the supplied directions as I did in the following.

To prepare for the cleaning and per the supplied instructions I first cleaned the carbine's bore using a good bore cleaner. I chose to use [Ed's Red homemade bore cleaner](#) to accomplish this task. Afterwards when I looked down the bore it was still very rough in appearance. I was hopeful that the EBC2 cleaner would work on cleaning her up, but I was not very optimistic. Not that I did not think the cleaner would do its job, just that I may have chosen too great a test to be successful.

I removed the bolt and inserted the bore plug. Then I

used a flat blade screwdriver to make sure the plug was firmly seated and would not allow any of the cleaner solution to leak out.



FIGURE 3

Manufacturer Supplied Instructions

Mount the barrel securely in an upright vertical position with the plugged end of the barrel at the bottom.

I used my Tipton gun vise to hold the carbine in an upright position. I placed the vise on the floor with the butt stock securely locked in place as shown in **figure 3**. I really don't know how I ever did anything with a firearm without one of these things!



FIGURE 4

Manufacturer Supplied Instructions

Slide one or more O rings, evenly spaced, onto the non-pointed end of the cleaning rod. Note: for .22 caliber, use electrical tape instead of O rings.

I slid all of the supplied O rings onto the cleaning rod. I did this because I wanted to make sure the rod did not short out in the barrel (*touch the side*). Then I inserted the pointed end of the rod into the barrel and pushed it firmly into the rubber plug's center.



FIGURE 5

Manufacturer Supplied Instructions

Insert the pointed end of the cleaning rod through barrel and into rubber bore plug. Mount the barrel securely in an upright vertical position with the plugged end of the barrel at the bottom.



FIGURE 6

Manufacturer Supplied Product Warnings
<ul style="list-style-type: none"> • Promptly remove the EBC unit from the gun barrel and wall outlet as soon as cleaning cycle completes (solid YELLOW light); • Never leave cleaning solution in the barrel when not running a cleaning cycle; • Remove the cleaning kit (all components) from the barrel when cleaner is not in use or is disconnected; • To prevent rust, clean and oil the barrel and firearm immediately after cleaning; • Do NOT repeat the cleaning cycle more than once; • Always ensure that the rubber bore plug is clean before each use. A dirty bore plug may cause an alternate connection across the plug and will result in impaired or no cleaning action.

**FIGURE 7**

Manufacturer Supplied Instructions
<p>Pour the LoveMyGuns Diamond solution into the top open end of the barrel. Fill the barrel to within 1/4" inch of the top.</p>

The cleaning solution comes premixed and in an easy to pour bottle. This is a lot easier than the funnel method I use in my homemade setup. Filling the barrel with the supplied solution was the only difficult step in the project. It was not difficult pouring in the solution, only difficult knowing when to stop. I ended up pouring in too much and having to pour off a little out from the top.



FIGURE 8



FIGURE 9

Manufacturer Supplied Instructions

Attach the EBC2 Electronic Bore Cleaner to the rod (using clip on rear of EBC case), and attach the black alligator clip to the outside of the barrel at a convenient spot. This may be the front metal sight or rear lug or frame that is solidly attached. Do not attach the alligator clip to a loosely attached piece, such as a moving link, or to a non metal part.

Attaching the EBC2 electronic unit to the supplied cleaning rod was very simple and I chose the carbine's actual cleaning rod for the location to attach the alligator clip (as shown in **figure 9**). The carbine's own cleaning

rod appeared to be well grounded to the bayonet lug which is attached to the barrel. This completed the circuit. Once I hooked everything up and plugged in the wall power unit, I found I had no shorts or other wiring problems.



FIGURE 10

Manufacturer Supplied Instructions

Let the cleaner work. It will shut off automatically after 1 hour. Note that each time the clip is removed, the timer will pause. When the clip is reconnected, the timer will resume again. Leave unit connected until it has finished. To reset 1 hour timer to initial time, remove power from the EBC unit and then reconnect the power pack.

The yellow light blinked just like the instructions said it would and it did change in frequency (*the number of blinks*). One thing I noted is that there was a slight gurgling/fizzing noise from the top of the barrel and bubbles could be seen escaping near the crown of the muzzle as the photo in **figure 10** shows above.

Legend for Blinking Pattern of Yellow Light

Constantly Blinking:	100% or 55 minutes - 1 hour remaining
9 blinks, pause	- 90% or 49-54 minutes remaining
8 blinks, pause	- 80% or 43-48 minutes remaining
7 blinks, pause	- 70% or 37-42 minutes remaining
6 blinks, pause	- 60% or 31-36 minutes remaining
5 blinks, pause	- 50% or 15-30 minutes remaining
4 blinks, pause	- 40% or 19-24 minutes remaining
3 blinks, pause	- 30% or 13-18 minutes remaining
2 blinks, pause	- 20% or 7-12 minutes remaining
1 blink, pause	- 10% or 0-6 minutes remaining



FIGURE 11



FIGURE 12

Manufacturer Supplied Instructions

After cleaning, immediately discard cleaning solution and remove the Cleaner Rod from the barrel. The black particles that come out of the barrel with the cleaning solution are lead. Some loosened lead will remain on the barrel, especially in the rifling grooves, and must be removed.

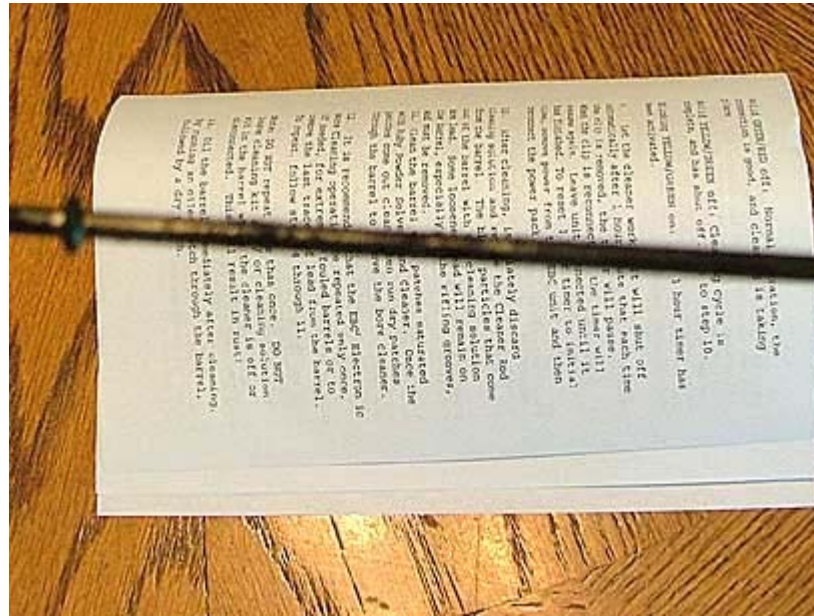


FIGURE 13

Manufacturer Supplied Instructions
<p>The Cleaning Rod will have lead deposited onto it, giving it a dull grey color. This does not harm the rod or its cleaning ability. Remove Lead from the rod with steel or brass wool. Rinse the rod and all rubber parts of the EBC2 Electronic Bore Cleaning system in warm water and dry with a clean cloth. Clean any liquid and/or grimy residue from the bore plug and rod after each use.</p>



FIGURE 14

After an hour passed the cleaning process was finished and the unit shut itself off. I unplugged the power and disconnected the electronics and set them aside.

I pulled the carbine free from the gun vise and then I poured the used solution from the carbine's bore into a

plastic container. Just as the instructions stated there were many large black particles floating in the bottom of the container (as shown in **figures 11 and 12**).

When I removed the cleaning rod I found it was a little difficult to remove the rubber bore plug as I had really jammed it into the chamber. I ended up taking a mallet and replacing the rod back into the bore with one end against the plug and then I lightly tapped the rod until the plug fell out. I will have to remember to do this next time before I remove the rod.

When I had an opportunity to examine the rod I noted it was just caked with crud (as shown in **figure 13**) and when I wiped it down the rag turned black (as shown in **figure 14**).



FIGURE 15

The instructions state: *Some loosened lead will remain in the barrel, especially in the rifling grooves, and must be removed.*

They were not kidding! On close inspection I could tell that the cleaner had really loosened things up inside of the bore. Immediately after the electronic cleaning, I took the carbine into the garage for a thorough cleaning and oiling. It took me well over a hundred patches and about an hour to finally get the bore clean. When I finally examined it with a bore light, I saw very strong and shiny rifling (as shown in **figure 15**).

Note: **Figure 15** is a photo of the bore from the breech

end of the barrel.

I was amazed as I had not really expected much success with this particular carbine. I really thought she had seen better days. Little did I know that she still has better days to see!

I would say our relationship is back on track and I no longer have thoughts of separation in our immediate future.

In my opinion the Love my Guns electronic bore cleaner would have paid for itself in this one single use as replacing the rifle or barrel would have cost more than double the cost of the cleaning unit.

I am now off to see if accuracy improves at the range with my little rehabilitated fraulein. ;)

Please, don't tell my wife!

jlm;)

Copyright 2003, 2004 © Jamie Mangrum